

REMARKS/ARGUMENTS

Simultaneous with the filing of the instant Amendment, Applicants have requested revival of the above-captioned application, currently regarded as abandoned, for unintentionally failing to file a response to the Non-Final Office Action mailed on January 30, 2009 within the time permitted under 37 CFR § 1.136(a). Applicants hereby submit the instant Amendment in response to the January 30, 2009 Non-Final Office Action and respectfully request consideration thereof. As set forth in the simultaneously filed Petition to Revive for Unintentional Abandonment, Applicants have stated that the entire period of delay from the due date for the response to the January 30, 2009 Non-Final Office Action until the filing of the instant Amendment was unintentional. As such, Applicants respectfully request revival of the present application to permit consideration of the instant Amendment and continued prosecution of this application.

Applicants authorize the Office to charge the large entity Petition Fee for revival of the application, and any fee deficiencies, or credit any overpayments, to Deposit Account No. 50-3118.

Claims 1, 2, 9-12, 23-25, and 31 were pending in this application at the time of the January 30, 2009 Non-Final Office Action. Claims 1, 2, 9, and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lawless et al. US 5,586,868 in view of Epstein et al. US 5,464,392, and Jeon et al. US 2002/0168278. Claims 10-11, 23, and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lawless et al. US 5,586,868 in view of Epstein et al. US 5,464,392, Jeon et al. US 2002/0168278, and Madsen et al. US 4,850,805. Claims 12 and 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lawless et al. US 5,586,868 in view of Epstein et al. US 5,464,392, Jeon et al. US 2002/0168278, Madsen et al. US 4,850,805, and Holst et al. US 2003/00553375.

Independent claims 1, 23, and 25 have been amended to further specify in part that: the plunger is disposed between a passive inlet valve and a passive outlet valve of the pumping chamber; the pressure sensor is directly connected to the plunger and adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber; and the passive outlet valve is operated by the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber. These amendments are supported by Applicant's specification at: page 5, line 30 to page 7, line 7; page 8, line 5 to page 8, line 29; page 12, line 7 to page 12, line 25; page 13, line 22 to page 14, line 7; Figure 1; and Figures 6-9. No new matter has been added.

None of the cited prior art discloses, individually or collectively, the limitations of amended independent claims 1, 23, and 25 requiring that: (1) the plunger is disposed between a passive inlet valve and a passive outlet valve of the pumping chamber; and (2) the pressure sensor is directly connected to the plunger and adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber.

Lawless et al. '868 discloses a medical pump for use with a cassette having a pumping chamber 22. The lower end 30b of crown 30 is not disposed between the passive inlet valve 49a and the passive outlet valve 49b, as required by amended independent claims 1, 23, and 25. Moreover, the plunger 73 disposed between the passive inlet valve 49a and the passive outlet valve 49b does not have a pressure sensor directly connected to it which is adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber, as required by amended independent claims 1, 23, and 25. Furthermore, the proximal and distal pressure sensors 74 and 75 are both located remotely downstream from the plunger 73, are not directly connected to the plunger 73, and are not adapted to detect the pressure, between the passive inlet valve 49a and the passive inlet valve 49b, exerted by the plunger 73 on the pumping chamber, as required by amended independent claim 1, 23, and 25.

None of the other cited prior art of record satisfies the deficiencies of Lawless et al. '868.

Epstein et al. '392 discloses a pump chamber 20/208 intermittently stroked by first plunger or pumping actuator 46/272 in FIGS. 1, 4 and 5, and a separate pressure chamber 22/212 located downstream of the pump chamber 20 and outlet valve via a passageway. The actuator 46 (if construed as a plunger) acting on the pump chamber 20 is not directly connected to a pressure sensor which is adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber, as required by amended independent claims 1, 23, and 25. The pressure head 306 fastened to the pressure transducer 40 on linkage 310 monitors pressure at the pressure chamber 22/212 (C19, L30-39) downstream of the pump chamber 20. The pressure head 306 is not disposed between a passive inlet valve and a passive outlet valve of the pump chamber 20, nor is it directly connected to the actuator 46 (if construed as a plunger) and adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the actuator 46 (if construed as a plunger) on the pump chamber 20, as required by amended independent

claims 1, 23, and 25.

Jeon et al. US 2002/0168278 also does not disclose a plunger disposed between a passive inlet valve and a passive outlet valve which is adapted to pressurize a pumping chamber, nor a pressure sensor directly connected to the plunger and adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber, as claimed by amended independent claims 1, 23, and 25. Jeon et al. discloses a valve that is passive only in the sense that it is not mechanically operated. It appears from paragraph [0128] that a voltage must be applied to electrodes on either side of the valve to cause the valve to open. Even if Jeon et al. were improperly construed to disclose pressure sensing in a pumping chamber with a passive outlet valve, the combination still does not disclose the plunger and pressure sensor arrangement as claimed by amended independent claims 1, 23, and 25.

Madsen et al. '805 similarly does not disclose a plunger disposed between a passive inlet valve and a passive outlet valve which is adapted to pressurize a pumping chamber, nor a pressure sensor directly connected to the plunger and adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber, as claimed by amended independent claims 1, 23, and 25. Madsen only discloses a pair of capacitor plates 64, 66 and force sensing circuitry 100 that is indirectly connected to the plunger 74 by virtue of an intervening pivot connection 62, sensing beam 70 and flexible beam 68, and does not disclose the plunger and pressure sensor arrangement as claimed by amended independent claims 1, 23, and 25.

Holst et al. US 20030055375 likewise does not disclose a plunger disposed between a passive inlet valve and a passive outlet valve which is adapted to pressurize a pumping chamber, nor a pressure sensor directly connected to the plunger and adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by the plunger on the pumping chamber, as claimed by amended independent claims 1, 23, and 25. Holst only discloses proximal and distal pressure sensors 24, 34 that are remote from the plunger 42, and does not disclose the plunger and pressure sensor arrangement as claimed by amended independent claims 1, 23, and 25.

As detailed above, all of the cited prior art, both individually and collectively, are missing the limitations of amended independent claims 1, 23, and 25 requiring that: (1) the plunger is disposed between a passive inlet valve and a passive outlet valve of the pumping chamber; and (2) the pressure sensor is directly connected to the plunger and adapted to detect the pressure, between the passive inlet valve and the passive outlet valve, exerted by

the plunger on the pumping chamber. As a result, amended independent claims 1, 23, and 25 are in condition for allowance.

Claims 2, 9-12, 24, 31, and new claims 32-40 each depend from one of amended independent claims 1, 23, or 25, add further limitations which are not disclosed by the prior art of record, and are also in condition for allowance. Support for new claims 32-40 is disclosed in Applicant's specification at: page 5, line 30 to page 7, line 7; page 8, line 5 to page 8, line 29; page 12, line 7 to page 12, line 25; page 13, line 22 to page 14, line 7; Figure 1; and Figures 6-9. No new matter has been added.

Claims 3-8, 13-22, and 26-30 have been canceled.

Applicants request that the first named inventor for this application be corrected in the USPTO records to read Michael W. Lawless as specified in the originally filed papers. Apparently in mistaken response to Applicants' request for a corrected filing receipt, which was entered into the record on March 8, 2005, the Office sua sponte rearranged the order of the inventors listed and placed Howard L. Greene as the first named inventor in a new bibliography sheet entered into the record on July 26, 2007.

Nine (9) new dependent claims have been added, which brings the total number of claims in this application to nineteen (19), including three (3) total independent claims. Other than the large entity Petition Fee for revival of this application, which Applicants have herein authorized the Office to charge to Deposit Account No. 50-3118, no further fees or request for extension of time is believed to be due in connection with this paper; however, the Commissioner is authorized to consider this a request for any additional extension of time and to charge Deposit Account 50-3118 for any additional fees (or credit any over-payments) that may be required in association with this communication for which full payment has not been tendered.

For the reasons stated above, Applicants request favorable consideration of this application and allowance of all pending claims. The Examiner is encouraged to contact Applicants' patent counsel, Michael R. Crabb, by telephone at the number listed below if the Examiner believes it will assist in expediting the allowance of the pending claims.

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Appl. No. 10/810,123
Reply to Office Action of January 30, 2009

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Respectfully submitted,
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